

6.18

Factoring the Difference of Two Squares

• Example 1

Factor $x^2 - 16$.

Think $\begin{array}{c} \uparrow \quad \uparrow \\ x^2 - 4^2 \end{array}$

Since $x^2 - 16$ is a difference of squares, we have

$$x^2 - 16 = (x + 4)(x - 4)$$

• • • CHECK YOURSELF 1

Factor $m^2 - 49$.

• Example 2

Factor $32x^2y - 18y^3$.

Note that $2y$ is a common factor, so

$$32x^2y - 18y^3 = 2y(16x^2 - 9y^2)$$

Difference of squares

$$= 2y(4x + 3y)(4x - 3y)$$

• • • CHECK YOURSELF 2

Factor $50a^3 - 8ab^2$.

• • • CHECK YOURSELF ANSWERS

1. $(m + 7)(m - 7)$. 2. $2a(5a + 2b)(5a - 2b)$.

6.18 Exercises

Name _____

Section _____

Date _____

A N S W E R S

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Factor the following binomials.

1. $m^2 - n^2$

2. $r^2 - 9$

3. $x^2 - 49$

4. $c^2 - d^2$

5. $49 - y^2$

6. $81 - b^2$

7. $9b^2 - 16$

8. $36 - x^2$

9. $16w^2 - 49$

10. $4x^2 - 25$

11. $4s^2 - 9r^2$

12. $64y^2 - x^2$

13. $9w^2 - 49z^2$

14. $25x^2 - 81y^2$

15. $16a^2 - 49b^2$

16. $64m^2 - 9n^2$

17. $x^4 - 36$

18. $y^6 - 49$

19. $x^2y^2 - 16$

20. $m^2n^2 - 64$